

Louisiana
Department of Transportation
And
Development

Traffic Control Standard
Number 21A

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D.V.B.

Traffic Control Standard #21A

Pedestrian Control Signals

Revised April 18, 2002

Adjustable Face Pedestrian Signal Sections

General

All pedestrian signal section shall be of the adjustable type (Stk. #14-02-2010 for 9" and #14-02-2400 for 12"). Materials and construction shall conform to the specifications that follow.

Position of Signal Indications

All signal indications shall be in a straight vertical line and shall be in the following order. Position 1 shall be at the top with the legend "DON'T WALK" (Stk. #14-04-5380 for 9" and #14-04-5425 for 12"). Position 2 shall be at the bottom with the legend "WALK" (Stk. #14-04-5375 for 9" and #14-04-5420 for 12"). Position 1 will be Portland orange in color. Position 2 will be lunar white in color.

Housing – Plastic (See part b.)

a. (Cast aluminum unless otherwise specified.)

The housings shall be made of cast aluminum. If die cast, they shall be made of either alloy S5 or alloy SG3 of ASTM specification B85 – 48T or the latest revision thereof; if sand cast, they shall be made of alloy S1 of ASTM specification B26 – 48T or the latest revision thereof.

All cast metal parts shall have a tensile strength of not less than 17,000 pounds per square inch and shall be clean, smooth, and free from flaws, cracks, blowholes and other imperfections.

Housings shall be sectional and each face shall consist of as many sections as there are optical units, together with a suitable top and bottom, all sections being rigidly and securely fastened together into one weather-tight signal face.

Each face shall be arranged with 2" round openings (slip-fit for 1 ½" conduit) in the top and bottom so that it may be rotated as a complete unit between waterproof supporting brackets or trunnions, and thus be capable of being directed and locked at any angle in the horizontal plane. Serrations, detents, bolts or similar locking devices is required; friction will not be deemed an acceptable lock. These locks shall be such that

any face will resist a torque of 20 foot-pounds when assembled in accordance with manufacturers recommendations.

The portion of the housing adjacent to the bracket shall be properly reinforced so as the have sufficient strength against breakage from shock. Seals, gaskets, labrynth or a suitable combination of same shall be provided at bracket attachment points and at section joints to insure water shedding. Supporting brackets or trunnions shall be used at top and bottom of section assembly to rigidly support all faces.

The bracket at the supported end of the signal section shall be of 1 1/2" conduit or of an equivalent inside clearance for wiring. The bracket at the opposite end of the section may be either same as the top or of solid construction. A setscrew engaging a drilled hole shall be provided at each joint on the bracket where conduit type joints are used or an equivalent locking device shall be provided.

b. (Plastic when specified)

The housing of each section shall be of one-piece plastic material, of approved composition, with sides, top and bottom integrally molded. The housing shall be at least 0.090 thicknesses and shall be ribbed so as to produce the strongest possible assembly consistent with lightweight. Two sets of internal bosses shall be provided in each section for horizontal mounting of a terminal block.

The top and bottom exterior of the housing shall be flat and parallel to assure perfect alignment of assembled sections. The top and bottom of the housing shall have an opening two inches in diameter to permit entrance of 1 1/2" pipe brackets.

Individual signal sections shall be fastened together either with machine screws between each section or by the three bolts and two-washer method. Complete signal faces shall provide positive locked positioning when used with serrated brackets, mast arm or span wire fittings.

Housing Door

The doors shall be of the same material as the housing and shall be suitable hinged and held securely to the body of the housing by simple non-corrosive locking devices, which can be operated without tools. All other door parts, such as hinge pins, lens clips, etc., shall also be of non-corrosive material or material treated to retard corrosion. Door hinge pins shall be so designed that the door will not accidentally become disconnect from housing when open regardless of signal position. Doors shall be field removable with simple tools.

Weather-resisting, mildew-proof neoprene or silicone rubber sponge gasketing between the body of the housing and doors shall be provided which shall exclude dust and moisture.

Visors

Each signal section shall be a visor, which tilts slightly downward approximately 8 degrees from the horizontal. The visor shall be of sheet construction of aluminum alloy not less than 0.05" (No. 18 U.S. Gauge) in thickness, or plastic (when specified).

The visor shall be attached to the door with non-corrosive screws and shall be designed to fit tightly to the door and shall not permit any perceptible filtration of light between the door and the visor.

Optical Unit

The completed optical unit shall consist of the lens, the reflector, the lamp and the lamp socket. The optical unit and visor shall be designed as a whole so as to eliminate the return of outside rays entering the unit from about the horizontal (known as sun phantom). The optical unit shall be so designed and assembled that no light can escape from one indication to another.

The minimum values of luminous transmission and the limits of chromaticity for all traffic signal lenses shall be as defined in the ASA specification D10.1 - 1951. The glass shall be free from bubbles, 3/16" to 5/16" in thickness and smooth on the outside surface. If the lens is designed for a particular position in the vertical plane, each lens shall be marked to indicate clearly the top and/or bottom. However, no lettering shall be visible on the lens from the normal viewing position.

The performance of all solid color lenses shall be such that when installed in standard pedestrian signals (equipped with an approved lamp and reflector properly operated and focused), the resultant appearance, candle-power distribution and intensity, when compensated for absorption due to the color, will at least equal the light distribution as specified in the ASA specification D10.1 - 1951.

The lenses shall be given one coat of black opaque enamel of a thickness sufficient to hide totally the light of a 150-watt lamp placed behind it. The enamel shall be free from all pinholes and shall be applied to the outside surface of the lens in such a manner that when the lens is in use, the legend shall be the illuminated portion of the lens. The enamel shall be baked or fired into the glass and shall not peel or flake off when subject to the heat of a signal lamp when the lens is in use or when the lens is washed.

All reflectors shall be either glass or Alzak aluminum.

Glass reflectors shall be made of one-piece best quality, clear glass, reasonably free from bubbles or ripples, with its back surface silvered by chemical deposition to such thickness that the filament of a lighted 100 watt incandescent traffic signal lamp is

invisible through the silver layer. The silver layer shall adhere so closely to the glass that admission of any foreign substance – solid, liquid or gas – shall be prevented.

Over the reflective backing there shall be applied electrolytically, a coat of metallic copper at least 0.0005" thick at the minimum point to reinforce and protect the silver. The copper shall extend over the edge of the mirror at least one-fourth of the thickness of the glass. Of the weight of the copper backing is less than 1 oz. per reflector, there shall be placed over the backing one or more coats of paint or enamel of such quality as to render the greatest resistance possible to the admission of moisture of gases which might injure the copper or silver backing.

Aluminum reflectors shall be made of specular Alzak aluminum, the thickness of the anodic coating to be a minimum of 0.0003", spun or punched from metal not less than 0.025" thick, equipped with a bead or flange on the outer edge to stiffen the reflector and insure its being held true to shape. The reflecting surface shall be totally free of flaws, scratches, and defacements of mechanical distortion.

Reflectors may be mounted either in the housing or on the door. The mounting is to be of non-corrosive material so arranged that the reflector can be easily swung out the housing and away from the door to provide easy access for all maintenance and repairs. In each case the method of mounting and fastening shall be sufficiently rigid to secure proper alignment between the lens and reflector when the door is closed. An endless neoprene or rubber gasket shall be provided between the reflector and lens to insure a dust tight seal.

The reflector shall have an opening in the back for the lamp receptacle. The lamp receptacle shall be made of heat resisting material designed to hold a 69-watt traffic lamp with the light center at the focal point of the reflector (150 watt for 12" section). This receptacle shall be provided with a lamp grip to prevent the lampworking loose due to vibration. Provision shall be made on either the lamp receptacle or reflector holder to permit the proper focusing of lamps, and a secure fastening for the retention of the desired focus. A suitable dust tight gasket (not cork) shall be placed between the reflector and the lamp socket.

Each lamp receptacle shall be provided with two colors coded No. 18 AWG stranded lead wires. The wires shall be Type TW (or approved equal) and shall be securely fastened to the socket. A terminal block shall provide a terminal for each signal section in that particular face plus one common terminal. All wires shall be long enough to allow the reflectors to be swung completely out of the housing without disconnecting any circuits.

Finish

All signal sections except the lenses, gaskets, reflectors, terminal blocks, wiring and sockets shall be finished inside and out with two coats of high grade green enamel

(Outdoor Advertising Association #144 Green), each coat independently baked to resist peeling and chipping. Color chip supplied upon request. All visors shall be painted on the outside with green enamel as above and the inside to be painted flat black.

Drawing and Literature

The vendor shall furnish with the first shipment on each order ten (10) copies of parts lists and assembly instructions, provided order is for ten (10) or more signal section. If order is for less than ten (10), one copy of parts list and assembly instructions shall be provided for each signal section ordered.

Guarantee

The manufacturer shall guarantee the unit to meet the above specifications and operate in a satisfactory manner for two (2) years from the date of acceptance by the Department or one (1) year from the date of installation – whichever is later.